THE MINERAL INDUSTRY OF SWITZERLAND

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Mineral assets in Switzerland were limited. The reserves of the small deposits of metalliferous ores that once existed in Switzerland were mostly depleted. Any new metal mining activities have been discouraged for environmental reasons. Consequently, metals were not mined in 2004.

All metal production in Switzerland was from either imported raw materials or scrap. Metal processing was confined mainly to the production of primary and secondary aluminum, copper, pig iron, secondary lead, and steel. Switzerland relied on imports for many mineral commodities because of self-imposed environmental restrictions and lack of natural resources. Concerns about environmental pollution reportedly caused the adoption of a policy to curtail gradually or perhaps even cease smelting activities. Mining and mineral production were mainly industrial mineral commodities required for construction. These commodities included cement, clays, gravel, gypsum, lime, and sand (table 1).

The Swiss mineral industry was largely controlled by the Government and was owned privately or by regional governments (table 2). The 26 regional cantons, or communal governments, grant mining and processing licenses and directly operate electricity-generating facilities, gas utilities, local transportation facilities, and water resources. The cantons enjoy a high degree of administrative authority and have their own constitutions and laws. In many areas, the Federal Government simply legislates and supervises while the 26 cantons implement the legislation (U.S. Commercial Service, 2004§[1]).

Switzerland has an area of 41,285 square kilometers and had a population of 7.3 million and a work force of about 4 million. Border countries are Austria, France, Germany, Italy, and Liechtenstein. The gross domestic product in purchasing power parity was $230 billion, and per capita income was $31,690. The annual growth rate was 0.8% in real terms, and unemployment was 3.6% (International Monetary Fund, 2004§).

Trade has been the key to prosperity in Switzerland. The country depended on exports to generate income and on imports for most mineral commodities. The country had liberal trade and investment policies. Swiss exports to the United States were valued at about $9.3 billion in 2004 and $8.6 billion in 2003. Swiss imports from the United States were valued at about $11.6 billion in 2004 and $10.7 billion in 2003 (U.S. Census Bureau, 2004§).

Alcan Aluminium Valais SA (part of the Alcan Group of companies) continued production at its aluminum smelter at Steg and its plant at Sierre. Although the plant at Sierre rolled sheets for a variety of applications, its main customer was the automotive market (Alcan Inc., 2005§).

Schmelzmetall AG produced high-performance copper based alloys in high-vacuum furnaces. The basic materials for all alloys were such raw materials as beryllium, chromium, cobalt, copper cathodes, nickel, and zircon. The alloys were processed to semifinished and finished products for use in such applications as diecasting, molds for plastic injection technology and nonferrous and ferrous metallurgy, and resistance welding. Schmelzmetall sold these products under the trademark of HOVADUR® (Schmelzmetall AG, 2004§).

Produits Artistiques de Métaux Précieux SA (PAMP) operated on of the world's leading and most modern gold refineries in the world. PAMP produced a selection of shapes and sizes of gold bars that ranged from 1 gram to 12.5 kilograms in size and handled more than 400 metric tons per year of material. The refining methods included wet chemical chlorination (aqua regia), electrolysis, and wet chemical parting. All gold mine doré and scrap gold can be refined up to the highest grade of 999.9 purity (Produits Artistiques de Métaux Précieux SA, 2004§).

In 2004, the steel industry of Switzerland was characterized by a high degree of specialization. Stahl Gerlafingen AG operated an electric arc furnace at its plant at Gerlafingen. Gerlafingen was the leading supplier of reinforced steel products in Switzerland. von Moos Stahl AG operated an electric arc furnace at its plant at Emmenbrucke. von Moos was among the leading suppliers of engineering and free-machining steel for the automobile industry and machinery and equipment manufacturers in Switzerland and Western Europe. Both companies based their steel production on recycled scrap metal (Swiss Steel AG, 2004§).

In 2004, salt was produced by one company, Saline de Bex SA, from its mine at Bex. The company produced salt exclusively for the Canton of Vaud and, since 2000, for export to Europe and North America (Saline de Bex SA, 2004§).

Hydroelectricity accounted for about 60% of Switzerland's electricity production; nuclear energy, about 35%; and fossil fuels, 3.8%. Wind and solar accounted for a small amount. Tests were underway to establish the feasibility of producing energy from geothermal sources. Two sites, one in Basel and one in Geneva, were being appraised (Swiss World, 2004§).

Switzerland's infrastructure was modern and well developed. The country had a very substantial and efficient rail network, an extensive road system (honeycombed with tunnels to cope with the mountainous terrain), two major airports (Geneva and Zurich), and a few smaller airports with international connections. Though landlocked, Switzerland had a state-of-the-art maritime transport network with some 30 oceangoing vessels and river-borne cargo services with connections to the North Sea via barges and tugs on the Rhine River (U.S. Central Intelligence Agency, 2005§).

[1]References that include a section mark (§) are found in the Internet References Cited section.

Outlook

Although Switzerland's mineral-related assets are limited mainly to aluminum and basic construction materials, the country serves as a major diamond exchange; is actively involved in the cutting and polishing of diamonds; and plays a significant role in international diamond trade activities, although it has no diamond mines. Switzerland avoids heavy reliance on imported primary energy by balancing ample indigenous hydropower resources with nuclear facilities and through conservation efforts. The Swiss watch- and clock-making industry has performed well during recent years.

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Major Source of Information

Office Fédéral de la Statistics
INFO
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TABLE 1

SWITZERLAND: ESTIMATED PRODUCTION OF MINERAL COMMODITIES[1]

(Thousand metric tons, unless otherwise specified)

Commodity[2]		2000	2001	2002	2003	2004
METALS						
Aluminum:						
Primary	metric tons	35,539 [3]	36,228 [3]	40,007 [3]	43,538 [r, 3]	44,538 [3]
Secondary	do.	188,900 [r, 3]	181,700 [r, 3]	181,400 [r, 3]	186,930 [r, 3]	185,000
Iron and steel, metal:						
Pig iron		100	100	100	100	100
Crude steel		1,020 [r]	1,048 [r, 3]	1,100	1,100	1,200
Semimanufactures		700	700	700	700	700
Lead, refined, secondary	metric tons	10,100 [3]	8,000 [3]	8,000	8,000	9,000
INDUSTRIAL MINERALS						
Cement, hydraulic		3,720 [r]	3,920 [r]	3,771 [r, 3]	3,700	3,800
Gypsum		300	300	300	300	300
Lime		60 [r]	60 [r]	60 [r]	75	75
Nitrogen, N content of ammonia		33 [3]	31	33 [3]	29 [3]	32 [3]
Salt		42 [r]	40 [r]	43 [r]	56 [3]	45
Sulfur, from petroleum refining	metric tons	3,000	3,000	3,000	3,000	3,000
MINERAL FUELS AND RELATED MATERIALS						
Petroleum refinery products:						
Liquefied petroleum gas	thousand 42-gallon barrels	2,000	2,000	2,000	2,000	2,000
Gasoline	do.	9,000	8,690	9,000	9,000	9,000
Distillate fuel oil	do.	9,500	3,036 [3]	3,000	3,000	3,000
Residual fuel oil	do.	5,500	3,397 [3]	3,500	3,500	3,500
Bitumen	do.	800	800	800	800	800
Refinery fuel and losses	do.	2,000	2,000	2,000	2,000	2,000
Total[4]	do.	28,800	19,900	20,300	20,300	20,300

Estimated data are rounded to no more than three significant digits; may not add to totals shown. [r]Revised.

[1]Table includes data available through March 2005.

[2]In addition to the commodities listed, a variety of crude construction materials (common clay, sand and gravel, and stone) were produced, but output was not reported, and available general information was inadequate to make reliable estimates of output levels.

[3]Reported figure.

[4]Total of listed products only.

TABLE 2
SWITZERLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2004

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum		Alcan Aluminium Valais SA (Alcan Group, 100%)	Smelter at Stag, rolling mill at Sierre	168
Cement		Holcim (Schweitz) AG (Holcim Group, 100%)	Plants (7) at various locations	4,300
Do.		Cementfabrik Holcim AG (Holcim Group, 100%)	Plant at Rekingen	700
Copper	metric tons	Schmelzmetall AG	Refinery at Gurtnellen	2,400
Gold	do.	Produits Artistiques de Métaux Précieux SA (MKS Finance SA, 100%)	Refinery at Castel San Pietro	425
Lead, secondary		Metallum AG	Smelter at Pratteln	13
Refinery, petroleum	barrels per day	Tamoil (Suisse) SA	Refinery at Collombey	47,000
Do.	do.	Petroplus International NV (Petroplus Corp., 100%)	Refinery at Cressier	68,000
Salt		Saline de Bex SA (Canton of Vaud, 100%)	Saline plant at Bex	50
Steel		Stahl Gerlafingen AG (Swiss Steel AG, 100%)	Plant at Gerlafingen	650
Do.		von Moss Stahl AG (Swiss Steel AG, 100%)	Plant at Emmenbrucke	300